

REMARKS

In response to the Office Action mailed January 7, 1997, Applicants have cancelled claims 27-33 and added new claims 37-43. Accordingly, claims 1-26 and 34-43 are presented for examination. No new matter has been added by this amendment.

For the convenience of the Examiner, Applicants' remarks herein are set forth below under appropriate subheadings.

Rejection of Claims 1, 3-7, 10-16 and 21-36 under 35U.S.C. §103 over Greenberg in View of Mandich

Claims 1, 3-7, 10-16 and 21-36 were rejected under 35 U.S.C. §103 as being unpatentable over U.S. Patent No. 3,993,845 (Greenberg) in view of U.S. Patent No. 5,322,553 (Mandich).

Claims 27-33 have been canceled, so the rejection on these grounds should be withdrawn.

Claim 1 of the present application is an independent claim from which claims 3-7, 10-16, 21-26, 34 and 35 depend. Claim 1 recites *inter alia* "A process ... comprising a steps of: ... contacting the surface of the first metal with an aqueous composition ... free of ingredients selected from the group consisting of ammonium ions, thiosulphate ions and combinations thereof."

Claim 18 of the present application is an independent claim from which claim 36 depends. Claim 36 recites *inter alia* "A process ... comprising the steps of: ... contacting the metal surface with an aqueous composition ... free of ingredients selected from the group consisting of ammonium ions, thiosulphate ions and combinations thereof."

Greenberg relates to a method of producing copper-silver films by chemical replacement of copper by silver. (Greenberg at col. 1, lines 16-18). According to the method of Greenberg, a copper-coated surface is contacted with a replacement solution containing an ammonical silver salt and a complexing agent. (Greenberg at col. 5, lines 29-31). Greenberg is entirely silent regarding a process that does not include the use of ammonium ions, thiosulfate ions, or combinations thereof. In fact, the Examiner admits Greenberg's deficiencies in the Office Action. Furthermore, Greenberg provides no suggestion that there would be any advantage to using such a method. Hence, Greenberg standing alone does not teach or suggest the process recited in claims 1, 3-7, 10-16, 21-26 and 34-36 of the present application.

Mandich relates to an electroless silver plating composition. (Mandich at col. 1, lines 6-7). The plating solution disclosed by Mandich includes the redox system thiosulfate-sulfite sulfate. (Mandich at col. 1, lines 46-47). As a result, this process includes the use of thiosulfate ions. Moreover, Mandich is entirely silent regarding a process that does not include thiosulfate ions, as recited in claims 1, 3-7, 10-16, 21-26 and 34-36. Therefore, Mandich does not anticipate or render obvious these claims.

Neither Greenberg nor Mandich, alone or in combination, teaches or suggests a process that includes the use of an aqueous composition which is free of ingredients selected from the group consisting of ammonium ions, thiosulfate ions and combinations thereof, such as recited in claims 1, 3-7, 10-16, 21-26 and 34-36. The claims do not recite the absence of the recited materials in the alternative, but rather the claims require each of the recited materials to be absent. There is no suggestion to pick and choose individual materials from the references and then to combine them to provide such a process. Furthermore, even if these references were combined, there result

would not be the process recited in claim 1, 3-7, 10-16, 21-26 and 34-36. Instead, the result would be a process that includes the use of ammonium ions and/or thiosulfate ions. Thus, Applicants respectfully request reconsideration and withdrawal of this rejection.

Rejection of claims 2, 17, 18 and 21-36 under 35 U.S.C. §103 over Greenberg in view of Mandich and further in view of Applicants' admitted state of the art

Claims 2, 17, 18 and 21-36 were rejected under 35 U.S.C. §103 as being unpatentable over Greenberg in view of Mandich and further in view of Applicants' admitted state of the art (present application at page 1, line 8, page 9, line 26).

Claims 27-33 have been canceled, so the rejection on these grounds should be withdrawn.

Claims 2, 17, 18, 21-26, 34 and 35 each depend from claim 1. As discussed above, neither Greenberg nor Mandich, alone or in combination, anticipates or renders obvious claim 1 of the present application. Therefore, claims 2, 17, 18, 21-26, 34 and 35 are patentably distinguishable from Greenberg and Mandich, alone or in combination, for at least these same reasons.

Claims 18 and 36 are also discussed above where it is demonstrate that neither Greenberg nor Mandich, alone or in combination, anticipates or renders obvious claim 36 of the present application.

Applicants admitted state of the art teaches that it is well known to use silver coating on copper substrates for protecting copper from oxidation with the use of masks. (Present application page 1, line 8 - page 9, lines 26). However, Applicants further note the various problems associated with known methods of protecting copper from oxidation by using silver coatings. (Present

application at page 1, line 8 - page 9, line 26). Thus, the characterization of the prior art made in the present application does not teach or suggest a process for forming a silver coating, including the use of an aqueous composition which is free of ingredients selected from the group consisting of ammonium ions, thiosulfate ions and combinations thereof, such as recited in claims 2, 17, 18, 21-26 and 34-36. Hence, Applicants' admitted state of the art does not teach or suggest the processes recited in these claims.

Neither Greenberg, Mandich nor Applicants' admitted state of the art, alone or in combination, teaches or suggests a process which includes the use of an aqueous composition that is free of ingredients selected from the group consisting of ammonium ions, thiosulfate ions and combinations thereof, such as recited in the claims 2, 17, 18, 21-26 and 34-36. There is no suggestion to combine these references to provide such a method. Moreover, even if these references were combined, the result would not be the method recited in these claims. Instead, the result would be a method that included the use of ammonium ions and/or thiosulfate ions. Thus, Applicants respectfully request reconsideration and withdrawal of this rejection.

Rejection of Claims 8, 9 and 20 Under 35 U.S.C. §103 over Greenberg in view of Mandich and further in view of Leahy

Claims 8, 9 and 20 were rejected under 35 U.S.C. §103 as being unpatentable over Greenberg in view of Mandich and further in view of U.S. Patent No. 4,067,784 (Leahy).

Claims 8, 9 and 20 each depend from claim 1. As explained above, neither Greenberg nor Mandich, alone or in combination, anticipates or renders obvious claim 1 of the present application. Hence, claims 8, 9 and 20 are

patentably distinguishable from Greenberg and Mandich, alone or in combination, for at least these same reasons.

Leahy relates to a non-cyanide acidic silver electroplating bath and an additive therefore. This reference discloses that the non-cyanide acidic silver electroplating bath contains thiosulfate ions. (Col. 1, lines 47-50). Leahy is entirely silent regarding the use of a bath that does not include thiosulfate ions. Furthermore, this reference provides no suggestion that such a bath should be used. Therefore, Leahy does not anticipate or render obvious claims 8, 9 or 20 of the present application.

Neither Greenberg, Mandich nor Leahy, alone or in combination, teaches or suggests a process for forming a silver coating which includes the use of an aqueous composition that is free of ingredients selected from the group consisting of ammonium ions, thiosulfate ions and combinations thereof, as recited in claims 8, 9 and 20 of the present application. There is no suggestion to combine these references to provide such a method. Furthermore, even if these references were combined, the result would not be the processes recited in claims 8, 9 and 20 of the present application. Instead, the result would be a process that included the use of ammonium ions and/or thiosulfate ions. Thus, Applicants respectfully request reconsideration and withdrawal of this rejection.

Appropriateness of the Present Amendment

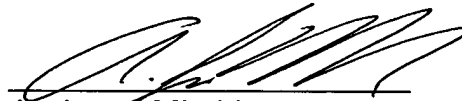
Applicants submit the present amendment under 37 C.F.R. §1.116 as an amendment after a final action. In this amendment, Applicants respond to rejections (e.g., rejection of claims 1, 3-7, 10-16 and 21-36 under 35 U.S.C. §103 as being unpatentable over Greenberg in view of Mandich) that were not previously made by the Examiner. Therefore, Applicants believe that there are good and sufficient reasons why this amendment should be entered.

CONCLUSION

In view of the foregoing amendments and remarks made herein, Applicants believe that each of pending claims 1-26 and 34-43 is in condition for allowance. Reconsideration, withdrawal of the grounds of rejection, and passage of the case to issue are respectfully requested.

If, upon receipt and consideration of this amendment, the Examiner believes that this application is not in condition for allowance, the Examiner is respectfully requested to contact Applicants' undersigned counsel at the number given below.

Respectfully submitted,



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